

**Listing of Claims:**

1. (currently amended): A material for absorbing biological fluids, comprising a flexible substrate and an enhanced surface, said enhanced surface comprising a polymer of antimicrobial monomeric moieties comprising a quaternary ammonium structure or a biguanide, ~~not pendant to the main chain of the polymer,~~ said polymer being covalently bonded by non-siloxane bonds to said flexible substrate so as to be non-hydrolyzable and non-leachable and wherein a sufficient amount of said non-hydrolyzable, non-leachable polymer is covalently bonded to said flexible substrate to render the material antimicrobial when exposed to aqueous fluids, menses, bodily fluids, or wound exudates.
2. (previously presented): The material of claim 1, wherein said antimicrobial monomeric moieties comprise at least one quaternary ammonium structure.
3. (canceled)
4. (previously presented): The material of claim 1, wherein said antimicrobial monomeric moieties comprise a biguanide.
5. (previously presented): The material of claim 1, wherein said non-hydrolyzable, non-leaching polymer has an average degree of polymerization of about 10 to 100.
6. (previously presented): The material of claim 1, wherein said material comprises all or part of a wound dressing, sanitary pad, a tampon, an intrinsically antimicrobial absorbent dressing, a diaper, toilet paper, a sponge, a sanitary wipe, isolation and surgical gowns, gloves, surgical scrubs, sutures, sterile packaging, floor mats, lamp handle covers, burn dressings, gauze rolls, blood transfer tubing or storage container, mattress cover, bedding, sheet, towel, underwear, socks, cotton

swabs, applicators, exam table covers, head covers, cast liners, paddings, lab coats, air filters for autos planes or HVAC systems, military protective garments, face masks, devices for protection against biohazards and biological warfare agents, meat or fish packaging material, apparel for food handling, or paper currency.

7. (original): The material of claim 1, wherein said flexible substrate is comprised, in whole or in part, of cellulose, or other naturally-derived polymers.

8. (previously presented): The material of claim 1 wherein said flexible substrate is comprised, in whole or in part, of synthetic polymers.

9. (canceled):

10. (currently amended): The material of claim 1-9, wherein a cerium-containing catalyst catalyzes the reaction wherein the polymer is covalently bonded to said flexible substrate formation of said ether linkage.

11. (previously presented): The material of claim 1 wherein said non-hydrolyzable, non-leachable polymer was formed by polymerization of allyl- or vinyl-containing monomers.

12. (currently amended): The material of claim 11 wherein said allyl- or vinyl- monomers are selected from the group consisting of: styrene derivatives; allyl and vinyl amines; allyl and vinyl amine salts; allyl and vinyl quaternary ammonium compounds; or and ammonium salts.

13. (canceled):

14. (currently amended): The material of claim ~~13~~ 12 wherein said allyl- or vinyl- containing monomers are selected from the group consisting of: ~~compounds of the structure~~  $\text{CH}_2=\text{CR}(\text{C}=\text{O})\text{X}(\text{CH}_2)_n\text{N}^+\text{R}'\text{R}''\text{R}'''/\text{Y}^-$ ; wherein, R is hydrogen or methyl, ~~n equals 2 or 3~~, X is either O, S, or NH, R', R'', and R''' are independently selected

from the group consisting of H, C1 to C16 alkyl, aryl, arylamine, alkaryl, and aralkyl, and Y is an acceptable anionic counterion to the positive charge of the quaternary nitrogen; diallyldialkylammonium salts, vinyl pyridine and salts thereof, and vinylbenzyltrialkylammonium salts.

15 - 29. (canceled):

30. (currently amended): An inherently antimicrobial composition comprising:

a. a substrate; and,

b. a coating, layer, or enhanced surface area on said substrate, comprised of polymeric ~~a plurality of~~ molecules of a polymer ~~of antimicrobial monomeric moieties comprising a having a multiplicity of~~ quaternary ammonium groups ~~structure or a biguanide groups not pendant to the main chain of the polymeric molecules~~, wherein said polymeric molecules are covalently, non-leachably bound to said substrate, and wherein said coating, layer, or enhanced surface area exhibits antimicrobial activity due to the presence of said polymeric molecules ~~of antimicrobial monomeric moieties~~.

31. (currently amended): The composition of claim 30, wherein said ~~antimicrobial monomeric moieties~~ polymeric molecules comprise at least one quaternary ammonium structure.

32. (canceled).

33. (currently amended): The composition of claim 30, wherein said ~~antimicrobial monomeric moieties~~ polymeric molecules comprise a biguanide.

34. (previously presented): The composition of claim 30, wherein said material comprises all or part of a wound dressing, sanitary pad, a tampon, an intrinsically antimicrobial absorbent dressing, a diaper, toilet paper, a sponge, a sanitary wipe, food preparation surfaces, gowns, gloves, surgical scrubs, sutures, needles, sterile packings, floor mats, lamp handle covers, burn dressings, gauze rolls, blood transfer

tubing or storage container, mattress cover, bedding, sheet, towel, underwear, socks, cotton swabs, applicators, exam table covers, head covers, cast liners, splint, paddings, lab coats, air filters for autos planes or HVAC systems, military protective garments, face masks, devices for protection against biohazards and biological warfare agents, lumber, meat packaging material, or paper currency.

35. (original): The composition of claim 30, wherein said flexible substrate is comprised, in whole or in part, of cellulose, or other naturally-derived polymers.

36. (original): The composition of claim 30 wherein said flexible substrate is comprised, in whole or in part, of synthetic polymers including, but not limited to: polyethylene, polypropylene, nylon, polyester, polyurethane, or silicone.

37. (canceled):

38. (currently amended): The composition of claim ~~30-37~~, wherein a cerium-containing catalyst catalyzes the reaction wherein the polymer is covalently, non-leachably bound to said substrate ~~formation of said ether linkage.~~

39. (currently amended): The composition of claim 30 wherein said non-hydrolyzable, non-leachable polymer chains are formed by polymerization of allyl-~~or vinyl-~~containing monomers.

40. (currently amended): The composition of claim 39 wherein said allyl-~~or vinyl-~~monomers are selected from the group consisting of: ~~styrene derivatives;~~ allyl amines, allyl amine salts, and allyl quaternary ammonium compounds; and ~~or~~ ammonium salts.

41. (canceled)

42. (currently amended): The composition of claim ~~41~~ 40 wherein said allyl- ~~or vinyl-~~containing monomers are selected from the group consisting of: ~~compounds of~~

the structure  $\text{CH}_2=\text{CR}(\text{C}=\text{O})\text{X}(\text{CH}_2)_n\text{N}^+\text{R}'\text{R}''\text{R}'''/\text{Y}^-$ ; wherein, R is hydrogen or methyl, n equals 2 or 3, X is either O, S, or NH, R', R'', and R''' are independently selected from the group consisting of H, C1 to C16 alkyl, aryl, arylamine, alkaryl, and aralkyl, and Y is an acceptable anionic counterion to the positive charge of the quaternary nitrogen; diallyldialkylammonium salts; vinyl pyridine and salts thereof; and vinylbenzyltrialkylammonium salts.

43. (canceled)

44. (currently amended): The antimicrobial composition of claim 43 30, wherein said substrate is a woven or nonwoven flexible matrix, and said composition is formed into the shape of a wound dressing.

45. (currently amended): The antimicrobial composition of claim 43 30, wherein said coating absorbs aqueous liquids.

46. (currently amended): The antimicrobial composition of claim 43 30, wherein said substrate is wood, lumber, or an extract comprising or a derivative of wood fiber.

47-50. (canceled)

51. (currently amended): An antimicrobial-coated composition for destruction of microbes contacting said composition, comprising:

- a. a substrate onto which a coating of antimicrobial polymers is bonded; and,
- b. said coating, formed of an effective amount of polymeric molecules having a multiplicity of quaternary ammonium groups not pendant to the main chain of the polymeric molecules, wherein said polymeric molecules are non-leachably and covalently bonded to surface sites of said substrate, wherein said polymers do not form using siloxane or ester bonds, and wherein said coating composition is absorbent of aqueous liquids, whereby said multiplicity of quaternary ammonium groups act to destroy microbes coming in contact with said groups.

52. (canceled)

53. (previously presented): The material of claim 1, wherein said flexible substrate is a woven fabric

54. (currently amended): The material of claim 1, wherein said antimicrobial monomeric moieties comprise ~~dimethyldiallylammonium~~ diallyldimethylammonium chloride, also known as DADMAC.

55. (previously presented): The material of claim 1, wherein said material further comprises an indicator that indicates a condition or status based on an aspect of said absorbed biological fluids.

56. (previously presented): The material of claim 1, wherein said material further comprises a hemostatic agent.

57. (previously presented): The material of claim 8, wherein said flexible substrate is polyethylene, polypropylene, nylon, polyester, polyurethane, or silicone.

58. (previously presented): The material of claim 8, wherein said flexible substrate is a nonwoven

59 - 66. (canceled)

67. (currently amended): The composition of claim 30, wherein said antimicrobial monomeric moieties polymeric molecules are polymers of ~~dimethyldiallylammonium~~ diallyldimethylammonium chloride, also known as DADMAC.

68. (previously presented): The composition of claim 30, wherein said substrate is a woven fabric.

69. (previously presented): The composition of claim 30, wherein said substrate is a nonwoven.

70. (previously presented): The material of claim 1, wherein the polymer is a homopolymer.

71. (canceled)

72. (previously presented): The material of claim 30, wherein the polymer is a homopolymer.

73-78. (canceled)

79. (new): The material of claim 1 comprising a flexible substrate and an enhanced surface comprising a polymer of antimicrobial monomeric moieties, wherein said flexible substrate is a superabsorbent material.

80. (new): The material of claim 79 wherein said flexible substrate is comprised, in whole or in part, of cellulose or other naturally-derived polymer.

81. (new): The material of claim 79 wherein said flexible substrate is comprised, in whole or in part, of synthetic polymer.

82. (new): The material of claim 79, wherein said antimicrobial monomeric moieties comprise allyl- or vinyl-containing monomers.

83. (new) The material of claim 82, wherein said allyl- or vinyl-containing monomers are selected from the group consisting of vinyl pyridine and salts thereof, vinylbenzyltrialkylammonium salts, styrene derivatives, allyl and vinyl amines, allyl and vinyl amine salts, allyl and vinyl quaternary ammonium compounds, diallyldialkylammonium compounds, and ammonium salts.

84. (new) The material of claim 82, wherein the allyl-containing monomers comprise diallyldimethylammonium chloride, also known as DADMAC.

85. (new): The material of claim 79, wherein said composition comprises all or part of a wound dressing, sanitary pad, a tampon, an intrinsically antimicrobial absorbent dressing, a diaper, toilet paper, a sponge, a sanitary wipe, burn dressings, gauze rolls, mattress cover, bedding, sheet, towel, underwear, socks, cotton swabs, applicators, exam table covers, head covers, cast liners, paddings, lab coats, air filters for autos planes or HVAC systems, military protective garments, face masks, devices for protection against biohazards and biological warfare agents, meat packaging material, or paper currency.

86. (new): The inherently antimicrobial composition of claim 30, wherein said substrate is a superabsorbent material.

87. (new): The inherently antimicrobial composition of claim 86 wherein the superabsorbent material comprises a flexible substrate.

88. (new): The inherently antimicrobial composition of claim 86 wherein said substrate is comprised, in whole or in part, of cellulose or other naturally-derived polymer.

89. (new): The inherently antimicrobial composition of claim 86 wherein said substrate is comprised, in whole or in part, of synthetic polymer.

90. (new): The inherently antimicrobial composition of claim 86, wherein said polymeric molecules comprise polymers of allyl-containing monomers.

91. (new) The inherently antimicrobial composition of claim 90, wherein said allyl-containing monomers are selected from the group consisting of allyl amines, allyl amine salts, allyl quaternary ammonium compounds, diallyldialkylammonium compounds, and ammonium salts.



92. (new) The inherently antimicrobial composition of claim 90, wherein the allyl-containing monomers comprise diallyldimethylammonium chloride, also known as DADMAC.

93. (new): The inherently antimicrobial composition of claim 86, wherein said composition comprises all or part of a wound dressing, sanitary pad, a tampon, an intrinsically antimicrobial absorbent dressing, a diaper, toilet paper, a sponge, a sanitary wipe, burn dressings, gauze rolls, mattress cover, bedding, sheet, towel, underwear, socks, cotton swabs, applicators, exam table covers, head covers, cast liners, paddings, lab coats, air filters for autos planes or HVAC systems, military protective garments, face masks, devices for protection against biohazards and biological warfare agents, meat packaging material, or paper currency.